



LOS ANGELES SECTION, REGION 9

### San Bernardino & Riverside Counties Branch

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## Outstanding Project Awards

**OUTSTANDING PRIVATE SECTOR CIVIL ENGINEERING PROJECT** (Please select the category or categories below that are applicable to your project)

Project Name: Colton Crossing Flyover - Rail-to-Rail Grade Separation

Project Address or Location: Colton, CA

Project Owner Name or Company: Union Pacific

Contact Person: David D. Orrell

Address: 1400 Douglas Street, Stop 910, Omaha, NE 68179

Phone: 402-544-3485 e-mail: dorrell@up.com

On a separate sheet of paper, please describe the project, including any special features, innovations, and challenges. Consider all phases of the project, including planning, design, construction, and operation maintenance. Include information on the environmental impacts and public benefits of the project, a color photograph of the project and any articles from trade journals or newspapers about the project.

**OUTSTANDING PUBLIC SECTOR CIVIL ENGINEERING PROJECT** (Please select the category or categories below that are applicable to your project)

Project Name: \_\_\_\_\_

Project Address or Location: \_\_\_\_\_

Project Owner Name or Company: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_ e-mail: \_\_\_\_\_

On a separate sheet of paper, please describe the project, including any special features, innovations, and challenges. Consider all phases of the project, including planning, design, construction, and operation maintenance. Include information on the environmental impacts and public benefits of the project, a color photograph of the project and any articles from trade journals or newspapers about the project.

**Award Category for ASCE Region 9 Consideration** (please check (✓) all that apply)

<input type="checkbox"/>	Airports & Ports Project
<input type="checkbox"/>	Architectural Engineering Project
<input type="checkbox"/>	Bikeways & Trails Project
<input type="checkbox"/>	Bridge Project
<input type="checkbox"/>	Community Improvement Project
<input checked="" type="checkbox"/>	Construction Project
<input type="checkbox"/>	Energy Project

<input type="checkbox"/>	Environmental Engineering Project
<input type="checkbox"/>	Flood Management Project
<input type="checkbox"/>	Geotechnical Project
<input type="checkbox"/>	Historical Renovation Project
<input type="checkbox"/>	Parks & Recreation Project
<input type="checkbox"/>	Roadway & Highway Project
<input type="checkbox"/>	Small Project

<input checked="" type="checkbox"/>	Structural Engineering Project
<input type="checkbox"/>	Sustainable Engineering Project
<input checked="" type="checkbox"/>	Transportation Project
<input type="checkbox"/>	Urban or Land Development Project
<input type="checkbox"/>	Water Project
<input type="checkbox"/>	Water/Wastewater Treatment Project

**(The following must be completed with each nomination)**

**THIS NOMINATION HAS BEEN SUBMITTED BY:**

Name: Tom Kim

Title: Senior Vice President

Employer: HDR

Address: 3230 El Camino Real, Suite 200

Phone: 714-504-8860 e-mail: tom.kim@hdrinc.com

*All nomination forms and supporting documents are the property of the San Bernardino & Riverside Counties Branch and may be used at the Branch's discretion. Submittals will not be returned.*

*Please complete one form for each nomination.*



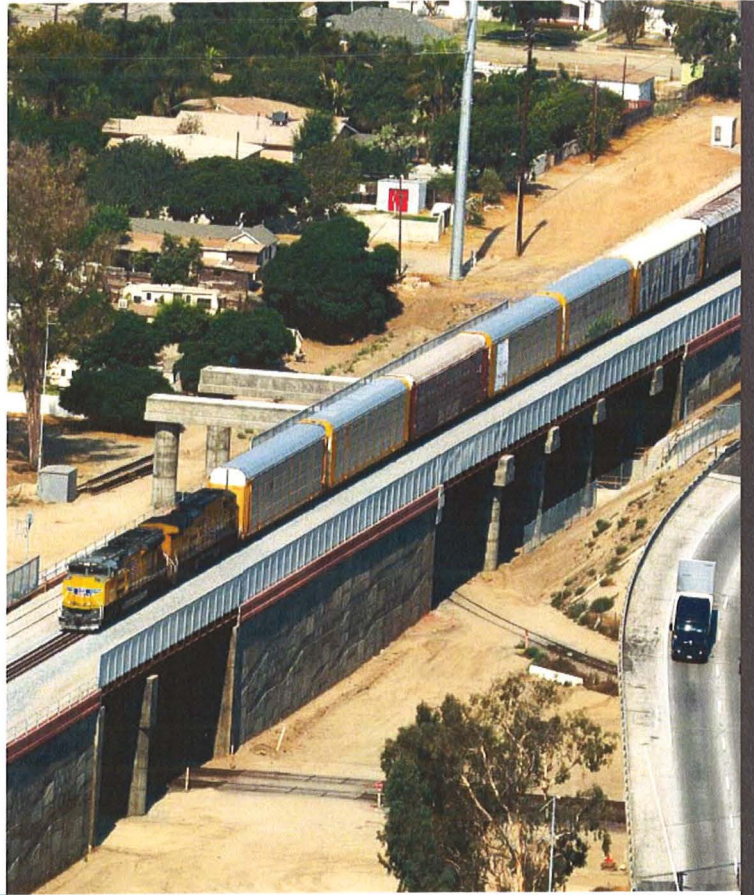
2014 Outstanding Private Sector  
Civil Engineering Project Nomination

## Colton Crossing Flyover Rail-to-Rail Grade Separation

Project Owner: Union Pacific  
Submitted by: HDR



SKANSKA



# Project Description



# An innovative solution to the oldest bottleneck in U.S. history.

## A Pioneering Project with a Storied Past

The Colton Crossing Flyover relieved "the oldest bottleneck in U.S. history."

So dubbed by the U.S. Department of Transportation, the busy, at-grade rail-to-rail intersection posed problems for more than a century and once featured an armed standoff. In 1883, Southern Pacific hired the famed Virgil Earp to prevent California Southern from crossing its tracks at the time of the crossing's opening.

The major rail bottleneck lasted into modern times, with an average of 125 trains crossing daily, making it one of the nation's busiest at-grade rail intersections. But today's players turned to innovative engineering and a cost- and time-saving approach rather than a solution inspired by the Wild West.

The project involved construction of an 8,150-foot flyover structure to take Union Pacific Railroad's east/west tracks 35 feet above the north/south tracks of BNSF Railway. Passenger rail lines also use the tracks.

The Colton Crossing Flyover brings economic growth through improved efficiency for the two largest U.S. freight railroads, with additional benefits of improved air quality and reduced noise for the local community of Colton, 50 miles east of Los Angeles.

**Eliminating a Chokepoint:**

The project involved construction of an 8,150-foot flyover structure to take Union Pacific Railroad's east/west tracks 35 feet above the north/south tracks of BNSF Railway. Passenger rail lines also use the tracks.

**A Pioneering Design:**

To overcome the site constraints, the team developed a pioneering design featuring an unprecedented amount of cellular concrete at an unparalleled height.

## Innovative Design, Use of Materials and Construction Techniques

Designers created a first-of-its-kind flyover structure to overcome the complex challenges of the Colton Crossing site.

With HDR as the lead design consultant, the team developed a pioneering design featuring an unprecedented amount of cellular concrete at an unparalleled height. Working with more than 20 stakeholder groups to surmount site constraints and right-of-way challenges, designers delivered the first-ever flyover structure to feature two tracks and a continuous maintenance. **The team accomplished its goals in just 24 months for less than \$99 million - eight months ahead of schedule and more than \$100 million under budget.**

### Site Poses Complex Design Challenges

More than 130 years after Virgil Earp stood guard at Colton Crossing, the flyover project sought to eliminate the chokepoint by elevating UPRR's tracks approximately 35 feet above BNSF's tracks on a flyover structure, improving goods movement originating both locally and from the nation's largest combined harbor in the ports of Long Beach and Los Angeles.

UPRR and BNSF considered maintaining rail service one of the most critical priorities during construction. An average of 84 BNSF

trains crossed the project daily, coupled with an average of 42 UPRR trains. Therefore, the flyover alignment could not interfere with the existing alignment, but needed to be designed to tie into it with minimal delays.

The construction team had to stop construction for each crossing to provide right of way to the trains. The contractor established 12 phases of work to optimize rail movement.

However, the constraints of the site limited the options for the location of a new alignment, with Interstate 10, neighborhoods and an existing rail yard bordering the site. Grade separations with roadways over the railroad to the east and west posed challenges to the new alignment tie-in both vertically and horizontally. Additionally, the limited availability of the track-laying machine dictated that both tracks be constructed on the new alignment at the same time.

The design team settled on an alignment between the existing UPRR mainlines and Interstate 10, but the limited footprint would not allow for typical sloped embankments for the approaches to the bridge. Instead, the flyover required retaining structures - which made up 40 percent of the original project cost estimate of \$202 million.

To support embankments and address seismic activity, the site needed replacement of the top 15 feet of poor-quality soil. This approach

**A Model for Future Projects:**

The Colton Crossing Flyover sets a new standard for future flyover projects. It demonstrates the technical breakthrough of using an unprecedented quantity of cellular concrete to provide the light weight and strength needed for a structure in a confined space with poor soil and high seismic demands.

would have required installing shoring to support the mainlines along the entire 8,150-foot flyover, then replacing the existing soil with engineered backfill.

**Innovative Use of Cellular Concrete Saves \$30 Million**

The engineering team developed a game-changing solution utilizing cellular concrete and precast concrete wall panels for the retaining structure. Though never before used in this quantity or at this height, cellular concrete offered the exact properties needed to solve the puzzle posed by the site constraints. Cellular concrete – a cement and water slurry infused with very small air bubbles – has a 70 percent lower density than earth backfill.

The strong, yet lightweight nature of the cellular concrete eliminated the need for conventional retaining structures because of its self-supporting quality. Therefore, the design no longer required replacement of underlying soils to support a heavier structure and vastly improve seismic performance.

This novel design also aided construction within the confined site by reducing the amount and size of equipment necessary. Cellular concrete could be pumped hundreds of feet from a batch plant consisting of just two or three semi-trailers. By contrast, replacing the top 15 feet of soil and building earthen embankments would have taken several thousand truckloads of imported fill material, requiring large bulldozers and compaction equipment. The design maintained rail service during construction, as placement of cellular concrete occurred only 15 feet from the centerline of a mainline track, which remained in operation during placement of material.

Using approximately 200,000 cubic yards of cellular concrete, stretching 39 feet high, the Colton Crossing Flyover sets records for the use of the material. Those numbers translated into even more meaningful numbers for UPRR and the 20 stakeholder groups involved. Cellular concrete lowered the project cost \$30 million when compared to building conventional retaining structures on top of earth backfill, also helping shorten the project schedule.

**Colton Offers Economical Model for Future Projects**

The Colton Crossing Flyover sets a new standard for future flyover projects. It demonstrates the technical breakthrough of using an unprecedented quantity of cellular concrete to provide the light weight and strength needed for a structure in a confined space with poor soil and high seismic demands.

Using cellular concrete can tremendously reduce the need for subsurface ground improvements. This allows for construction under physical constraints such as poor soil and limited space, reducing or eliminating the need for shoring as well as soil replacement.

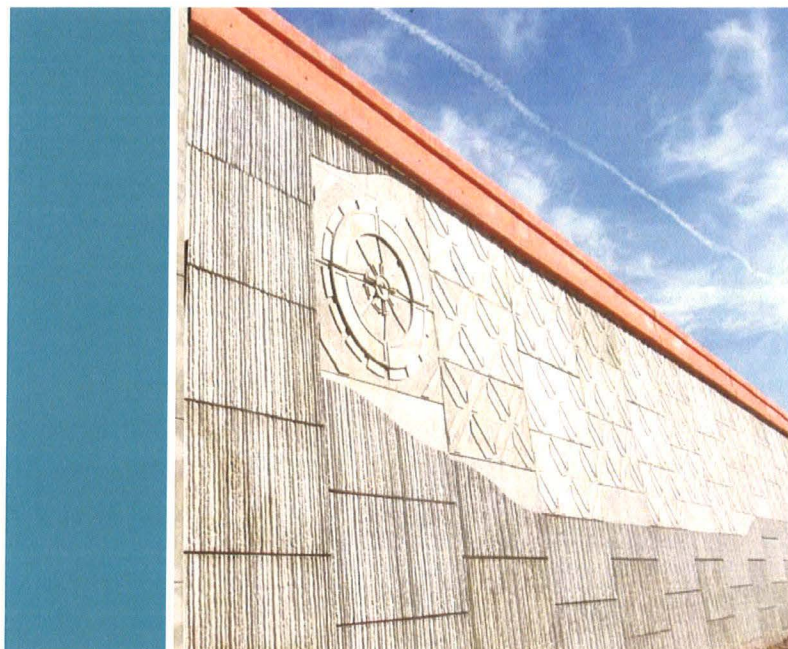
Furthermore, the Colton Crossing Flyover contractors placed cellular concrete faster than erecting a traditional retaining structure, and it required less and smaller equipment – helping overcome the space constraints. Those factors helped lower the project costs \$30 million and complete the project eight months ahead of schedule, providing a measurable value for owners initiating similar projects.

**Social, Economic and Environmental Benefits**

The Colton Crossing Flyover improved the efficiency of freight movement for the more than \$287 billion in goods that flow through California's ports annually, making a critical impact on the Southern California and U.S. economies. Reducing train and vehicle delays improved the environment and community with better air quality and lower noise levels. The project also improved safety and contributed to the visual landscape of the site.

**Economic Impact of Crossing Felt Nationwide**

Eliminating the chokepoint, which affected regional and national goods movement, will make an immediate economic impact. As the U.S. Department of Transportation noted, "the Colton Crossing could be the oldest bottleneck in U.S. history, with a history of freight delays dating back to 1883." In addition to heavy goods movement originating in California, the ports of Los Angeles and Long Beach, which form the largest combined harbor in the U.S., are expected to double the amount of cargo



#### Community Benefits:

Designers seized the opportunity to improve the visual landscape of the site by incorporating visual design elements from the façade of a historic South Colton church and the design theme for the future I-10 widening on the precast concrete wall panels. Additionally, the project improved the environment and the community with better air quality, lower noise levels and improved safety.

handled by 2020. Today, half of U.S. imports enter through California's ports, with more than 77 percent of that freight shipping to the rest of the U.S.

More than \$287 billion in freight moved through California ports in 2008, sustaining more than 3 million jobs nationwide. Union Pacific employs more than 4,800 people in California, with each freight rail job estimated to support 4.5 jobs elsewhere in the U.S. economy.

The project also benefited rail passengers and drivers. Stoppages at the crossing used to last as long as 50 minutes, with trains backing up miles into nearby cities. This created delays for both passengers of Amtrak and Metrolink, as well as motorists waiting at railroad crossings. The flyover significantly reduces such delays and is projected to save \$241 million in travel time annually.

Finally, the flyover reduced the intense maintenance cost of the previous diamond crossing for the railroads, and the site improvements will accommodate the I-10 widening project.

#### Environmental Benefits Include Improved Air Quality, Sustainable Design

By reducing idling time for locomotives and vehicles, transportation officials expect the

project to reduce greenhouse gas emissions 34,000 tons per year. Studies indicate mobile source air toxin emissions to be reduced by 76.7 percent compared to the at-grade crossing. Projected long-term, mobile source air toxin emissions are anticipated to be reduced by 265 percent by the year 2035 compared to projected emissions at the existing crossing.

The innovative design also produced sustainable benefits. By using cellular concrete, the HDR team eliminated the need to replace low-quality soil with several thousand truckloads of imported fill material, thereby reducing the size and number of pieces of equipment required for construction.

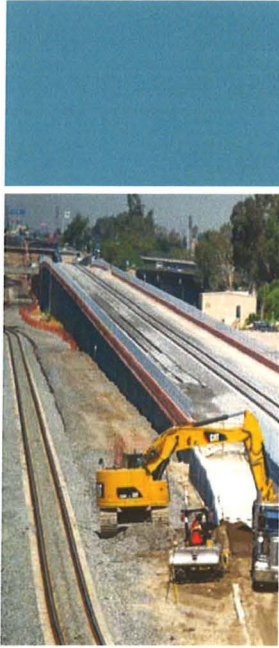
#### Project Reduces Noise Levels for Colton Community

Noise reduction proved to be a key consideration for local stakeholders. The project team held outreach and stakeholder meetings to develop concepts, minimize impacts and build community and stakeholder consensus. At a key point in the project, the city of Colton reached an impasse with the other team members concerning noise impacts to its residents. The project team brainstormed and developed a series of separate projects to establish "quiet zones" to eliminate the need for trains to sound their horns, leading to widespread support from city officials and local residents.

By eliminating the at-grade crossing, horn blowing at the crossing has decreased 50 percent, with quiet zones expected to further lower noise levels. The flyover also eliminated the loud impact sound of each wheel on trains at the previous diamond crossing, reduced noise from idling trains and decreased vibration at receivers south of the project site.

#### Flyover Walls Complement Local Design Themes

Designers seized the opportunity to improve the impact on the community. Working closely with stakeholders, the team used visual design elements from the façade of a historic South Colton church and the design theme for the future I-10 widening on the precast concrete wall panels. This theme carried into other elements of the project to enhance its visual character, integrate it with the



**A Web of Challenges:** In addition to the severe site constraints, the design team's challenges included satisfying the needs of more than 20 project stakeholder groups. The team collaborated within a public-private partnership to meet the aggressive schedule and qualify for federal funding.

surrounding community and gain support from local residents.

### Elimination of At-Grade Crossing Improves Safety

The Colton Crossing Flyover eliminates the at-grade rail crossing for approximately 125 trains daily, improving safety for the freight railroads and passengers of Amtrak and Metrolink. Additionally, pedestrians can no longer cross the UPRR mainline tracks at La Cadena Avenue.

Operational, physical and phasing constraints dictated the limits of the project's footprint. The UPRR and BNSF mainlines and connection tracks experience heavy traffic that prevented construction of a grade separation structure on the existing alignment due to interference with the UPRR mainline. HDR designed tie-ins between the project and the existing alignment to minimize delays to traffic during tie-ins. The project was also designed to minimize work in the 15-foot safety zone where construction work has to stop as trains are passing.

## Project Challenges and Complexities

The design team negotiated a web of project complexities to deliver a successful project that satisfied the needs of more than 20 project stakeholder groups. In addition to the site challenges, the team collaborated with a massive public-private partnership to meet an aggressive project schedule deemed necessary to secure U.S. Department of Transportation's (DOT) Transportation Investment Generating Economic Recovery (TIGER) Grant funding.

### Innovative Design Addresses the Site Complexities

The solution to elevate the UPRR tracks above the BNSF tracks with a 39-foot-tall, 8,150-foot-long flyover structure created significant design challenges, as previously described. Because UPRR needed to maintain rail service, the flyover alignment could not be located on the existing tracks' alignment, but had to be designed to connect to it without long service disruptions.

A confined site footprint and right-of-way issues created challenges to tie in the new flyover both horizontally and vertically. The

selected alignment did not permit space for sloped embankments, so the flyover required retaining structures for the bridge approaches. A conventional retaining wall approach including soil replacement and shoring to overcome poor soil amounted to 40 percent of the original \$202 million cost estimate for a traditional design solution.

The unique solution of using cellular concrete and precast concrete wall panels for the retaining structure provided the necessary strength for the structure without requiring soil replacement - and benefited construction by requiring fewer pieces of large equipment. This solution also helped to maintain rail service during construction.

### Leadership Promotes Stakeholder Consensus

The project involved 11 outside public agencies, nine separate utilities and numerous departments within the two largest freight railroads in the U.S. and two passenger rail lines. Leadership and proactive communication played critical roles in functioning smoothly as a team and developing consensus on critical decisions.

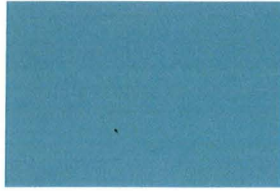
The focus on communication facilitated free flow of information and timely issue resolution. HDR's close relationships with the railroads fostered communication outside the stakeholder team. The team planned weekly conference calls to review progress and resolve issues, with additional meetings scheduled as needed. The communication plan ensured that the design team incorporated design input from all disciplines and project partners while meeting the schedule.

Additionally, the two railroads collaborated as true partners throughout the process. With BNSF's average of 84 trains crossing daily and 42 UPRR trains crossing daily, the railroads coordinated daily to continue service throughout construction.

### Public-Private Partnership with TIGER Grant Funding Intensifies the Schedule

Because of the creative, collaborative funding of the Colton Crossing Flyover, the schedule became accelerated to meet construction milestones to qualify for federal dollars. HDR





### Keeping the Goods Moving:

By minimizing outages, the project team kept the economic engine rolling at Colton Crossing throughout the project. Half of U.S. imports enter through California's ports, and more than \$287 billion in freight moved through California ports in 2008, sustaining more than 3 million jobs nationwide.

rose to meet this design challenge, helping secure the necessary funding and meeting the various priorities of the public agencies and utilities involved. Funding sources included state bonds, a TIGER Grant, the railroads, and Caltrans funding for environmental studies.

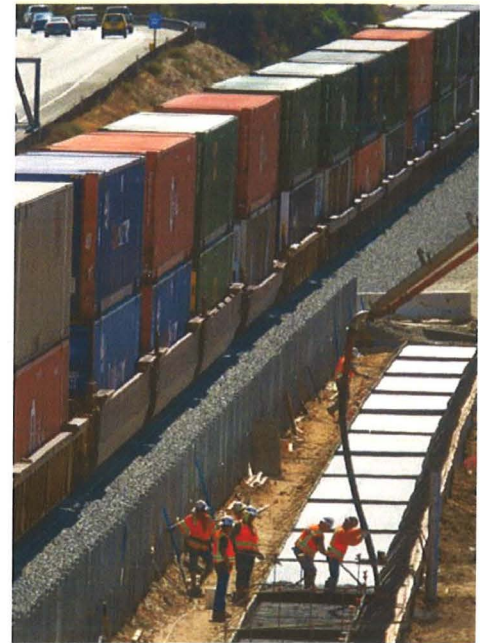
Because of the schedule requirements of the TIGER Grant, final design proceeded concurrent with the project approval/environmental document process. San Bernardino Associated Governments (SANBAG) insisted that the final design team be independent of the project approval/environmental document team to facilitate timely completion of the environmental process.

To make this possible, HDR quickly assembled a separate team of more than 90 people - including 14 offices and nine subconsultants - to deliver the final design in less than 12 months. The environmental process was not completed until nine months into final design and required Caltrans and Federal Highway Administration (FHWA) approval, thus requiring a team effort to complete final design in such a short time frame.

The design team met Caltrans' requirements to complete all environmental requirements, right-of-way approvals and utility agreements prior to advertising for construction bids, and met the TIGER Grant mandate to have bid-ready documents ready for FHWA and Federal Railroad Administration (FRA) review in time to start construction in November 2011. HDR met the nine-month deadline for bid-ready documents for a design that typically would have had an 18-month schedule.

### Exceeding Client Needs

The Colton Crossing Flyover successfully solved a freight bottleneck dating back to 1883 with an innovative structure that will keep goods moving for the two largest U.S. freight railroads, benefiting the Southern California and U.S. economies. Creativity in the design delivered the project for under \$99 million, less than 50 percent of the original estimate. The team completed the 24-month project eight months ahead of schedule, satisfying construction milestones of the public-private partnership and meeting the interests of the 20-member stakeholder group.



### Team Meets Daunting Schedule Requirements

The \$34 million TIGER Grant obtained by SANBAG required that construction begin by November 2011 and be completed by March 2014, in addition to needing FRA and FHWA approval of bid documents before bidding. SANBAG secured additional funding from Caltrans, which required all environmental requirements, right-of-way approvals and utility agreements to be in place prior to advertising for construction bids. This meant that Caltrans had to review and approve the bid documents before FHWA and FRA could start their review process. As a result, when HDR received the notice to proceed in August 2010, final design and bid document development - 503 drawings and 683 pages of specifications - needed to be completed in parallel with the environmental document in under 10 months.

For what typically would require an 18-month schedule, HDR met the nine-month deadline for bid-ready documents, securing federal funding for the project. The project was completed eight months ahead of schedule.

### Project Completed at Less than Half Original Budget

The team completed the project more than \$100 million below the original \$202 million budget. In spite of the aggressive design



#### Outstanding Engineering:

The Colton Crossing Flyover demonstrates outstanding engineering through innovative design to overcome space constraints and poor soil conditions.

schedule, the number of change orders during construction was held below 10 percent. HDR guided stakeholders through issues involving right-of-way, track centers and tight physical constraints to reduce the budget more than \$60 million by eliminating the need for temporary shoofly tracks and staging of the two UPRR mainlines. The innovative use of cellular concrete reduced the need for ground improvements, eliminated the costly retaining structures and reduced the cost of the bridge abutments, further reducing costs by \$30 million.

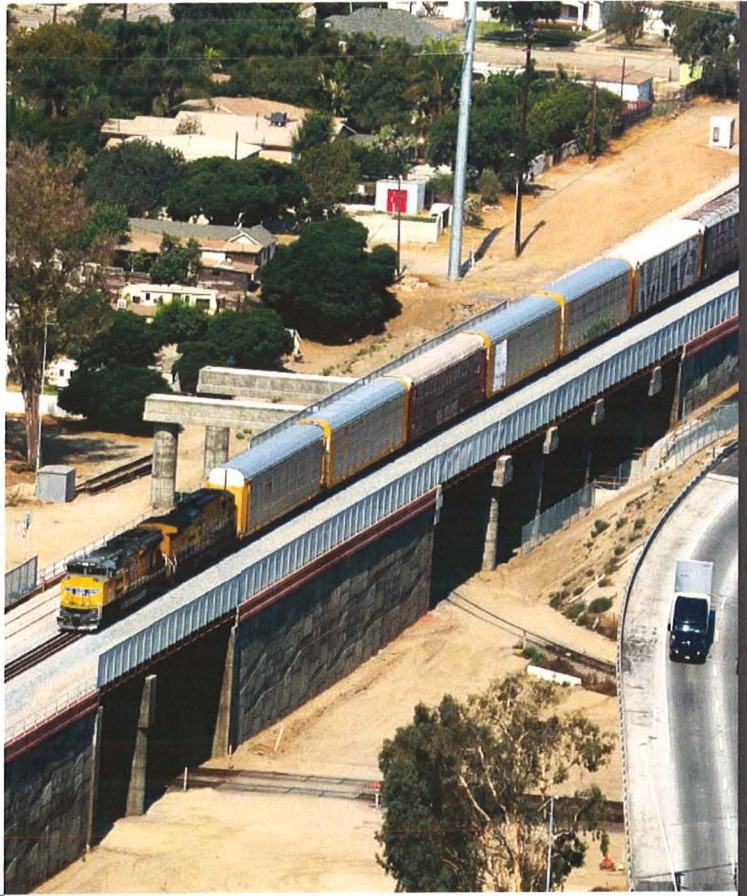
#### Team Keeps Trains Moving with Minimal Outages

Construction of the Colton Crossing Flyover required minimal track outages. The project had an average of 84 trains cross daily belonging to BNSF and 42 cross daily belong to UPRR.

The area within 15 feet of the centerline requires construction stoppage to allow the passage of trains. The flyover structure was constructed outside that limit, resulting in no stoppages of work for the contractor. UPRR and BNSF experienced only brief outages throughout the project.

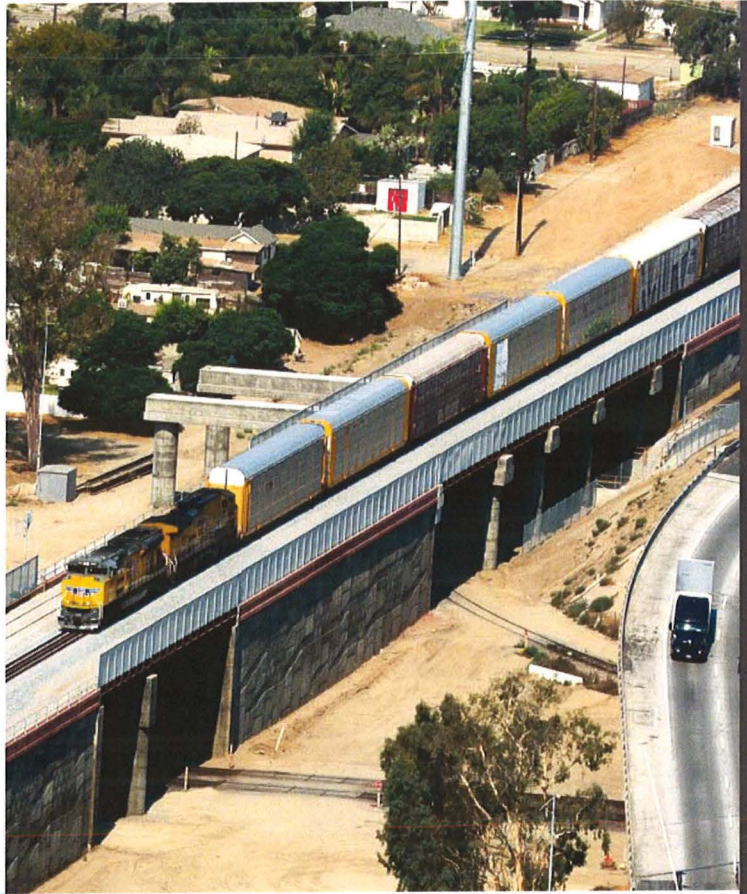
#### Conclusion

The Colton Crossing Flyover demonstrates engineering excellence through innovative design to overcome space constraints and poor soil conditions. The first use of cellular concrete on this scale offers a model for future projects with similar challenges. The design team navigated the complexities of the site and the 20-member stakeholder team to deliver the project more than \$100 million under budget and eight months ahead of schedule, delivering economic, environmental and community benefits.



Color  
Photograph





# News Articles

# SAN BERNARDINO COUNTY: New crossing relieves train bottleneck



KURT MILLER/STAFF PHOTOGRAPHER

The Colton Crossing as seen from Rancho Ave. looking east in Colton on Friday, August 23, 2013. Transportation officials will celebrate the completion of the Colton Crossing on Wednesday, a \$96.7 million overpass that separates where two major railroads meet. It was considered one of the busiest rail corridors in Southern California.

1 of 8



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A Text Size

BY IMRAN GHORI | STAFF WRITER | August 26, 2013; 09:50 PM

When a second set of railroad tracks was first proposed to cross through Colton in 1883, it took armed guards and the intervention of California's governor to get the line built.

Virgil Earp — brother of Wyatt — stood with a gun in hand in front of a halted locomotive to block the construction. But he backed down after Gov. Robert Waterman ordered the San Bernardino County sheriff to enforce an order allowing the new tracks to cross through an existing line.

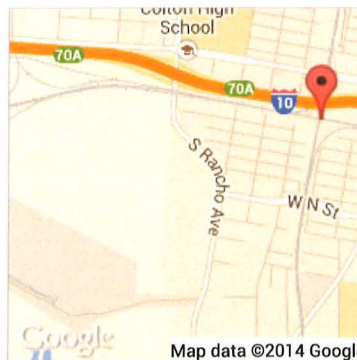
Relations between the Union Pacific and BNSF, the two railroad companies that now operate the lines, have been decidedly better in the years since. But the Colton Crossing created other problems — rail and vehicle traffic delays, noise and pollution — as the lines became some of Southern California's busiest railroad corridors.

Transportation officials hope all that is behind them now

## Related

**COLTON:** Officials cheer start of rail crossing construction (Nov. 11, 2011)

### Colton Crossing in Colton



Map data ©2014 Google

that a new overpass has opened on Sunday, Aug. 25. Local, state, federal and railroad officials will celebrate the completion of the project with a ribbon-cutting ceremony on Wednesday morning, Aug. 28.

It took years of planning to come to an agreement on the scope and cost of the project, but once construction began the work was completed in less than two years and at half the projected budget.

At the intersection, trains were forced to stop and wait for each other to clear the crossing, often creating miles-long freight backups that extended into neighboring cities and caused waits as long as 50 minutes.

The 1.4-mile overpass raises Union Pacific's east-west tracks 43 feet in the air over the BNSF north-south tracks, so the two rail lines no longer cross and stops are no longer needed. The fly-over, featuring two tracks, runs parallel to Interstate 10 from Rancho Avenue on the west to Mt. Vernon Avenue on the east.

"Both (rail lines) were not being as efficient as we could be when we were traveling through there," said Lupe Valdez, spokeswoman for Union Pacific, which oversaw construction of the project.

Both railways run trains 24 hours a day through the corridor — about 80 every day, down from more than 100 before the recession.

"We don't want trains stopped somewhere," Valdez said. "That doesn't help anybody."

Transportation officials say the project will reduce wait times for motorists at rail crossings as well as noise and air pollution from idling locomotives. The project also is important in boosting the Inland region's vital role in the goods movement industry, said Ray Wolfe, executive director of San Bernardino Associated Governments, which oversaw planning for the project.

"Projects that help to increase the ability to move goods quickly through the region are important to our overall competitiveness in the global marketplace," Wolfe said.

For long-suffering Colton residents, the project promises relief from the constant sound of horns blowing as trains made their way through the crossing. Federal law requires trains to sound their horns as they approach a crossing, but that is no longer necessary with the fly-over.

As part of the project, the railroads also agreed to install improved train gates and an electronic signal system that will create quiet zones at other rail crossings in the city so trains won't need to blow their horns there either.

Passenger rail also should see some improvements. The Union Pacific line also is used by Amtrak, and BNSF has agreed to allow additional Metrolink trains to run on its line.

"It's a good example of a public-private partnership all coming together," said Lena Kent, spokeswoman for BNSF. "It's good for passenger service and it's good for freight service."

Construction began in November 2011, and one track on the overpass opened in June.

"It's a long time coming and it's good to see it finally finishing up," Wolfe said.

The project originally was budgeted for \$202 million, but SANBAG says the final cost will be \$96.7 million because of design changes, lowered property acquisition needs and construction costs going down during the recession.

The project was funded through \$33.8 million in federal stimulus dollars, \$41 million in state bond money and \$3.7 million from Caltrans for environmental studies. The railroads contributed \$18 million.

It was several years before the railroads, Colton and SANBAG could agree on a project design and figure out a funding formula. At one point, Colton had sought a trench design that would have involved tunneling underneath the freeway and was estimated to cost \$2 billion.

[← Back to Original Article](#)

## Completed Colton Crossing overpass to eliminate rail bottleneck

*Concrete flyover in San Bernardino County was constructed to speed up cargo and lessen diesel emissions from waiting trains. The project came in under budget and ahead of schedule.*

August 28, 2013 | By Dan Weikel

One of the worst railway chokepoints in the nation was eliminated Wednesday with the opening of a \$93-million overpass that separated two busy tracks at historic Colton Crossing in San Bernardino County.

Under a hot morning sun, federal, state and local officials cut the ribbon for the 1.4-mile concrete flyover designed to speed cargo through Southern California and stop harmful diesel emissions from trains that used to wait up to four hours for their turn to go through the old street-level crossing.

"Nov. 8, 2011, was the groundbreaking," said Raymond W. Wolfe, executive director of the San Bernardino Assn. of Governments. "Two short years later, we are now celebrating a new era in railroading. It's truly an engineering feat for those who build infrastructure."

Originally estimated to cost \$202 million, the project was completed well under budget and eight months ahead of schedule. Officials attributed the cost and time savings to innovative construction techniques, cooperation among government agencies and a competitive market that produced bids that were lower than expected.

The 43-foot-high span replaces Colton Crossing, built in 1883. It is about 57 miles east of Los Angeles. Over the years, the crossing for what became the main tracks of the Union Pacific Railroad and the Burlington Northern Santa Fe Railway Co. remained largely unchanged, except for modern track and signals.

Located off Interstate 10 near Rancho Avenue, the old crossing saw Burlington Northern's north-south tracks intersect Union Pacific's east-west tracks at right angles, forcing trains to proceed one at a time. More than 100 trains use the tracks daily, including those of the Metrolink commuter service, which shares the Union Pacific route.

Because Burlington Northern controlled the crossing for years and gave its trains priority, Union Pacific suffered the vast majority of delays, with many of its trains halted just short of West Colton Yard, one of the Union's Pacific's largest freight facilities.

Robert Kern, a veteran Union Pacific engineer who is now a senior operations manager, recalled that he could make a run from Yuma, Ariz., to Colton — about 200 miles — in seven or eight hours only to be stopped at the crossing for one to two more hours before he could proceed into nearby Colton yard. Occasionally, he said, the delay lasted four hours.

"You can't imagine how disheartening that was," Kern said. "This project will be a godsend."

Regional transportation planners say the chronic delays in rail shipments made the Colton flyover a priority for goods movement in Southern California, especially for the ports of Los Angeles and Long Beach, the largest combined harbor in the United States.

Almost half of all U.S. imports shipped in cargo containers flow through Los Angeles and Long Beach before they travel by truck and train to other parts of the country. If trends continue, the amount of containerized cargo handled by both ports is projected to increase from 5% to 6.6% annually until 2020.

The flyover project is a public-private partnership involving Caltrans, the San Bernardino Assn. of Governments, the city of Colton, Union Pacific and Burlington Northern. Funding came from the railroads as well as state and federal sources, including the American Recovery and Reinvestment Act and Proposition 1B, which provides money for goods-movement projects in California.

[dan.weikel@latimes.com](mailto:dan.weikel@latimes.com)



## Colton Crossing rail overpass completed

By Jim Steinberg, *The Sun*  
Wednesday, August 28, 2013

sbsun.com

San Bernardino County Sun (<http://www.sbsun.com>)

### Colton Crossing rail overpass completed



COLTON >> Ahead of schedule and under budget.

The completion of Colton Crossing, a project to unclog train congestion for two major railroads, has been completed and officials from Caltrans and the San Bernardino Associated Governments celebrated that on Wednesday.

The elevated 1.4-mile long overpass removes gridlock for the BNSF Railway mainline crossing the Union Pacific Railway tracks.

The project was estimated to cost about \$202 million and be completed in 2014. It finished eight months early and came in at less than \$100 million.

Transportation officials estimate the project will deliver \$241 million annually in travel time savings and reduce greenhouse gas emissions by 34,000 tons.

URL: <http://www.sbsun.com/general-news/20130828/colton-crossing-rail-overpass-completed>

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